

Vol. 41

June, 1950

No. 4

BULLETIN

of

A. & T. COLLEGE

Graduate School



ISSUED QUARTERLY BY

The **AGRICULTURAL AND TECHNICAL
COLLEGE**

of **NORTH CAROLINA**

GREENSBORO, NORTH CAROLINA

Entered as second class matter July 2, 1909, at the postoffice
at Greensboro, N. C., under Act of July 16, 1894

BULLETIN
of
A. & T. COLLEGE
Graduate School



ISSUED QUARTERLY BY
The AGRICULTURAL AND TECHNICAL
COLLEGE
of NORTH CAROLINA
GREENSBORO, NORTH CAROLINA

TABLE OF CONTENTS

	PAGE
Admission -----	9
Advisers -----	12
Agricultural Economics -----	16
Agricultural Education -----	26
Agronomy -----	18
Animal Husbandry -----	20
Bacteriology -----	24
Biochemistry -----	25
Botany -----	25
Candidacy for Master's Degree -----	12
Certification regulation -----	12
Changes in study list -----	10
Chemistry -----	25
College scholarships -----	12
Economics -----	23
English -----	35
Faculty -----	5
Fees -----	12
General Information -----	8
Government -----	39
Guidance and Personnel -----	36
History -----	38
Home Economics -----	27
Industrial Education -----	27
Library facilities -----	8
Living accommodations -----	8
Mathematics -----	39
Period of Registration -----	12
Physics -----	40
Poultry Science -----	23
Professional Education -----	32
Program in Education -----	14
Registration -----	9
Requirements for graduate secondary and graduate elementary certificates -----	13
Requirements for Master's degree -----	11
Requirements for Principal's certificates -----	13
Responsibility of graduate students -----	10
Rural Education -----	34
Rural Sociology -----	21
Scholarships -----	12
Subject matter offerings in industrial arts -----	30
Thesis -----	11
Zoology -----	24

COLLEGE CALENDAR

1950-1951

September 11-12, 1950—Pre-Session Faculty-Staff Conference
September 18—Registration
September 19—Classes begin
September 20—Last day for registration and payment of fees without penalty. (See page 9)
September 23—Registration of In-service teachers
September 26—Last day for change in schedule
November 25—Last day for filing theses of candidates for Master's degrees for Fall Quarter
December 18-19-20-21—Fall Quarter Examinations
December 23—Final examinations for In-service teachers
January 2, 1951—Registration for Winter Quarter
January 3—Classes begin
January 4—Last day for registration and payment of fees without penalty (See page 9)
January 6—Registration of In-service teachers
January 10—Last day for filing theses of candidates for Master's degrees for Winter Quarter
March 14-15-16-17—Winter Quarter examinations
March 17—Final examinations for In-service teachers
March 19—Registration for Spring Quarter
March 20—Classes begin
March 21—Last day for registration and payment of fees without penalty
March 24—Registration for In-service teachers
March 26—Last day for change in schedule
April 30—Last day for filing theses of candidates for Master's degrees for Spring Quarter
May 22-23-24-25—Spring Quarter examinations
May 26—Final examinations for In-service teachers
May 27—Baccalaureate
May 28—Commencement

HOLIDAYS

Thanksgiving, November 30—December 1, 1950
Christmas Holidays, December 22, 1950—January 2, 1951
Easter Holidays—Friday through Monday

SPECIAL DAYS

Dudley Day—November 2, 1950
American Education Week—November 6-12, 1950
Religious Emphasis Week—December 3-6
Douglas' Birthday and Negro History Week (Joint Observance) February 5-12, 1951
Arbor Day—March 15, 1951—(Special Program by School of Agriculture)
National Negro Health Week—April 1-8, 1951
Morrill's Birthday—April 14, 1951—(Special programs by Agricultural and Mechanical Arts Societies)



Digitized by the Internet Archive
in 2013

<http://archive.org/details/bulletinofa41nort>

GRADUATE FACULTY

THE AGRICULTURAL AND TECHNICAL COLLEGE 1949-1950

Officers of Instruction

FERDINAND D. BLUFORD.....1007 Lindsay Street
President of the College

A.B., Virginia Union University, 1908; B.Ped., Howard University, 1909; Graduate work, Columbia University, 1924; D.Ped., Virginia Union University, 1926. Dean, Agricultural and Mechanical College of Alabama, 1909-1910; Professor of Education, Kentucky State College, 1910-1911; Professor of English, St. Paul Normal and Industrial School, 1911-1912; Professor of English, A. and T. College, 1912-1918; Dean, A. and T. College, 1918-1925. Present position since 1925.

WADARAN L. KENNEDY, Chairman of Faculty.....A. & T. College Farm
Dairy Husbandry

B.S., University of Illinois, 1927; M.S., *ibid.*, 1929; Ph.D., Pennsylvania State College, 1936. Instructor in Agriculture, West Va. State College, 1929-32; Instructor in Dairy Husbandry, A. & M. University, 1932-34. Present position since 1936.

LLEWELLYN A. WISE, Secretary of Faculty.....422 N. Dudley Street
Business

B. S. C. New York University, 1928; M. A., Atlanta University, 1934. Present position since 1928.

CHARLES M. POWELL.....2601 E. Market Street
Industrial Education

B.S., A. and T. College; M.A., New York University; Former positions, Instructor of Industrial Arts at Whiteville High School, Statistician at Harlem Y.M.C.A., New York; U. S. Army Section Construction Foreman. Present position since 1948.

RALPH L. WOODEN.....432 N. Dudley Street
Industrial Education

B.S., A. and T. College; Professional Teaching Diploma, Specialist School, U. S. Army Air Forces Technical Training School; M.A., Ohio State University; Graduate work toward Ph.D., *ibid.* Former positions: Instructor, North Street High School, Hagerstown, Md., 1938-39; Dudley High School, Greensboro, N. C., 1940-41; U. S. Army Ground School Instructor, Chanute Field, Illinois, Seymour-Johnson Field, N. C., Rome Army Air Field, New York, U. S. Army, 1941-45. Present position since 1947.

FREDERICK D. SMITH.....2601 E. Market Street
Biology and Animal Husbandry

B.S., Prairie View State College; M.S., Michigan State College; D.V.M., Michigan State College. Instructor at George Washington Carver High School, Houston, Texas. Present position since 1949.

CLARENCE E. DEAN.....Sedalia, N. C.
Agricultural Education

B.S., Hampton Institute, 1924; M.S., Iowa State College, 1930. Berry O'Kelly Training School, 1926-30. Present position since 1930.

- LITTLETON ALEXANDER ALSTON.....215 N. Dudley Street
English
 B.A., Virginia State College, 1939; M.A., *ibid.*, 1940; M.A., Columbia University, 1945; Professional Diploma in Teaching English, Teachers College, Columbia University, 1946; Residence requirements for Ed.D., in English completed, *ibid.*, 1946. Present position since 1946.
- WARMOTH T. GIBBS.....420 N. Dudley Street
History and Political Science
 A.B., Harvard University, Ed.M., *ibid.* Completed two years of further graduate study toward Ph.D., *ibid.* Professor History 1926 to 1929. Present position since 1929.
- WILSON ELBE WILLIAMS.....223 E. Gaston Street
Economics
 B.A., Fisk University; A.M., Howard University; Ph.D., University of Southern California. Economic Analyst, U. S. Employment Service; Assistant Professor of Economics, Lincoln University, (Missouri); Economic Consultant, Research Worker. Present position since 1949.
- JERALD M. MARTEENA.....1900 Gorrell Street
Mathematics and Mechanical Engineering
 B.M.E., Ohio State University, 1928; M.S., University of Michigan, 1932; completed one and one-half years of further graduate study toward Ph.D., *ibid.* Professor of Mathematics, A. and T. College, 1929-31. Present position since 1933.
- W. ANTHONY GAINES.....2601 E. Market Street
Sociology
 B.A., University of Pennsylvania; M.A., University of Pennsylvania; Ph.D., University of Pennsylvania. Director, Extension and Public Relations, Florida A. & M. College, 1946-1949; Director of Workshops and Research, Bethune-Cookman College, Summer, 1949; Director of Public Relations, Florida Normal College, 1940-49; Director of social studies, FuFssenden Academy, 1938-40. Present position since 1949.
- JOHN C. McLAUGHLIN.....910 Benbow Road
Agricultural Economics and Agronomy
 B.S.A., A. and T. College, 1931; M.S., Cornell University, 1932; Alcorn A. and M. College, 1932-37. Present position since 1937.
- ALMA I. MORROW.....1001 Lindsay Street
Librarian
 A.B., Howard University, B.S. in Library Science, Hampton Institute. Present position since 1935.
- WAVERLYN NATHANIEL RICE, JR.....109 Regan Street
French and Spanish
 A.B., Morehouse College, 1935; Diplome pour l'enseignement du francais a l'etranger; University of Toulouse, France, 1936; Docteur de l'Universite de Toulouse (Lettres). *Ibid.*, 1947. Summer Session, National University of Mexico, Mexico, 1939. Present position since 1937.
- S. B. SIMMONS.....501 Banks Street
Vocational Agriculture
 B.S.A., A. and T. College; Further study, University of Illinois, University of California and Kansas State College. Supervisor Vocational Agriculture.

S. C. SMITH.....A. and T. College

Industrial Education

B.S., A. and T. College, 1929; M.S., University of Michigan. Present position since 1941.

ELLIS C. RUSSELL.....A. and T. College

Education and Guidance

A.B., Atlanta University; A.M., University of Michigan; Completed requirements for the Ed.D., Harvard University. Academic Director, Fort Valley State Teachers College, Ga.; Professor of Education, The State Teachers College, Montgomery, Ala.; Head of the Department of Education and Professor of Education, Prairie State College, Texas; Training-Curriculum Specialist, The Office of Civilian Defense, Washington, D. C.; Head of the Department of Education and Head of the Department of Education and Professor of Education, Bethune-Cookman College, Daytona Beach, Fla. Present position since 1949.

MARION C. GEORGE, JR.....614 Benbow Road

Agronomy and Botany

B.S., A. and T. College; M.S., University of Illinois; Ph.D., Ohio State University. Assisting Professor of Agronomy, Ohio State University, 1948. Present position since 1949.

WILLIAM E. REED.....A. & T. College Poultry Farm

Agronomy

B.S., Southern University; M.S., Iowa State College; Ph.D., Cornell University. Present position since 1949.

WILLIAM E. ALEXANDER.....2601 E. Market Street

Animal and Dairy Husbandry

B.S., Hampton Institute; M.S., University of Wisconsin. U. S. D. A. Bureau of Animal Industry, Tuskegee Institute. Present position since 1949.

THOMAS ARTHUR CLARKE.....A. and T. College

Social Studies

B.S., City College of New York, 1936; M.S. in Education, 1945; *ibid.*; M.A., Columbia University, 1945; Recreation Director Bureau of Recreation Department of Parks, New York City, 1931-43; Marine Captain in International Transportation, Erie Railroad, 1943-45. Present position since 1945.

GENERAL INFORMATION

The Agricultural and Technical College of North Carolina was established by an act of the General Assembly of North Carolina, ratified March 9, 1891. The object of this institution is declared by the act to be for instruction in practical agriculture, the mechanic arts and such branches of learning as relate thereto not excluding academic and classical instruction. The college gradually developed these lines of work authorized by Acts of Congress and the Act of Legislature of this state, which made provisions for the Institution until it took on the form and functions of a college in conformity with the "Land Grant" or Morrill Act. This institution is known as the "Negro Land Grant College of North Carolina".

The college is provided with buildings, lands, laboratories, shops, live-stock, and other equipment necessary for the activities of an institution of its kind. The present valuation of the college plant is about \$2,000,000.

The Agricultural and Technical College of North Carolina is recognized as a Standard "A" Grade College, by North Carolina Department of Education, The Council of Education of the State of Pennsylvania, The American Medical Association, and The Southern Association of Colleges and Secondary Schools.

LIBRARY FACILITIES

The college library houses about thirty thousand (36,746) volumes and receives two hundred and one (201) current periodicals and twenty-three (23) newspapers.

All students registered in the college are entitled to full reference use of the library. Subject to certain necessary library rules and regulations, students may withdraw books for home use. The Bursar's receipt, bearing the student's signature, must be presented as identification.

LIVING ACCOMMODATIONS

There are five college residence halls on the campus: Annie W. Holland Hall, Morrison Hall and Vanstory Hall for women; North Dormitory and the men's Residence Hall for men. Board and room may be obtained upon the campus for a reasonable charge.

THE GRADUATE SCHOOL

W. L. Kennedy, Chairman

GENERAL STATEMENT

The Agricultural and Technical College of North Carolina offers to qualified students the opportunity to pursue advanced courses and to undertake research in Agriculture, Technical and Applied Sciences. All the technical and scientific departments give courses and direct research leading to the various Master of Science degrees.

The object of graduate study differs somewhat from that of undergraduate study. While extending the range of the student's knowledge still farther, the constant aim is to develop initiative judgment, and the power of independent thought.

The work of the Graduate School is under the general control of the Graduate Committee. The chairman of the Graduate Committee is charged with general supervision of all graduate students and is the medium of communication between such students and the college administration. The faculty consists of such members of the instructional staff as have immediate supervision of graduate courses.

ADMISSION

Admission to the Graduate School may be granted to graduates of institutions whose requirements for the baccalaureate degree are substantially equivalent to those of The Agricultural and Technical College of North Carolina.

Admission is granted by the College Registrar. If the applicant has attended more than one institution, an official transcript of the work covered at each institution is required. This applies to the complete academic record, both undergraduate and graduate. Official credentials should be sent directly from institutions to the Registrar. Failure to give attention to this important point in advance will lead to delay in registration.

Prospective students may make inquiries at any time regarding the possibilities of graduate study. Questions concerning admission should be addressed to the College Registrar. Blanks to be used in making applications for admission are obtained from the Registrar. General inquiries regarding graduate work may be addressed to the Chairman of the Graduate School. Students should not hesitate to write directly to a department head if they have specific questions regarding the work of a department.

REGISTRATION

All students must register at the beginning of each quarter or summer term. The registration days are indicated in the college calendar. Graduate students are allowed three days for registration following the regular registration days before the late fee of \$3.00 is imposed.

A graduate student must prepare each quarter a program satisfactory to his major professor and approved by the Chairman of the Graduate Committee. The student will then go to the office of the Registrar, secure

and fill out the proper forms and class cards, have these checked and approved by the Chairman of the Graduate Committee, and then proceed to the Bursar's office to pay the fees that are due.

Students registering for graduate courses must matriculate in the graduate school. This means that they must pay the matriculation fee at the time of first registration.

Graduate students may be permitted to register for undergraduate courses, if they desire to do so, but such courses would not carry credit toward meeting requirements for the Master's Degree.

DEFICIENCIES

Graduate students who have been permitted to register on condition that they make up certain deficiencies in their program, will be required to pass with a mark of at least "C" in each deficiency course.

COLLEGE SENIORS

Regularly enrolled seniors who lack not more than five hours to meet requirements for graduation may register for additional courses to complete a normal schedule, in the graduate school. Such additional courses may be counted towards the Master's Degree, after the Bachelor's Degree has been granted, but they will not be counted for meeting requirements for both the Bachelor's and the Master's Degree.

COLLEGE STAFF

Full-time members of the college staff may be permitted to register for not more than three hours, or one course, per quarter in the graduate school, provided such would not interfere with their regular assignments.

THE RESPONSIBILITY OF GRADUATE STUDENTS

The responsibility of course enrollment rests entirely upon the student. He should read the regulations carefully, and should follow them in all matters.

Members of the faculty are always ready to advise the student, and assist in planning his study program, but they are not responsible for enforcing the regulations of the Graduate School.

Credits secured in any way which does not comply with the regulations of the Graduate School will not be accepted to meet the requirements for a degree.

CHANGES IN STUDY-LISTS

A graduate student is expected to plan his work so carefully that changes in his study-list during the Quarter will not be necessary. When a change is advisable, however, it may be permitted without fee if made within one week of the date of the registration. After that date a fee of one dollar is charged for each change.

GRADUATE PROGRAM OF STUDY

Enrollment—Students enrolling in the Graduate School for the purpose of working towards a Master of Science degree should prepare, in the beginning a complete program of study leading to that degree. This should

be based on their major objective in studying for the degree and include courses which will satisfy general requirements as well as their individual needs.

Those planning to secure a graduate teaching certificate along with their Master's degree should take care to include the necessary courses in education as a part of their program. By so doing it will be possible to secure both the Master's degree and the graduate teaching certificate at the same time.

Residence Requirements—The minimum residence requirement for the Master of Science degree is one year. This may be met by full-time or part-time attendance during the regular year and/or by summer school attendance. The minimum credit requirement is forty-five quarter hours and a thesis. The normal schedule in the academic year is fifteen hours per quarter, and in the Summer School, nine hours per session.

Instruction will be given from time to time by the Chairman of the Graduate Committee concerning preparation of the thesis, comprehensive examination and other requirements for the Master of Science degree.

REQUIREMENTS FOR MASTER'S DEGREE

Candidates for the degree of Master of Science are required to do at least one year's work in residence. If work is done during the summer session, a minimum of five six-weeks sessions of study and residence is required. A minimum of forty-five quarter hours or thirty semester hours and a thesis will be required. Three quarter hours credit will be given for the thesis.

The graduate student will be required to meet a program of study leading to a definite objective. The mere completion of a stated amount of work does not entitle a candidate to be recommended for a degree. He must pass examinations upon such subjects and at such times as shall be designated by the department concerned. The candidate is required to be present at the time the degree is conferred.

THESIS

The thesis based upon research in the major department is required of every candidate. The thesis must demonstrate the candidate's ability to do independent study and must be acceptable in literary style and composition. A thesis offered in partial fulfillment of the requirement for a Master's degree must be typewritten and bound according to specifications furnished by the Graduate School, and before it is accepted, it must be approved by the major professor under whose guidance the research has been done.

The candidate is required to pass an examination upon his or her Thesis. The thesis must be turned over to the Chairman of the Graduate School at least two weeks before the examination can be held. Should the candidate fail to pass the examination, he or she will be required to spend an additional quarter in residence. Two copies of the thesis as approved by the major professor must be deposited in the College Library two weeks before graduation and its title, as approved by the major professor, will appear on the official commencement program.

SCHOLARSHIP

A minimum average grade of "B" must be maintained by the candidate. No credit will be given for grades below "C". Should a candidate receive two grades below "C," the student will be asked to discontinue his graduate work. A graduate student who fails in any course in his major subject cannot secure his degree in the same year in which the failure occurs. No conditional examination is given graduate students. Grades given at the end of the course are final.

As designated under Description of Courses, the courses numbered 600-699 are for graduate students only. Courses numbered 500-599 are for graduates and advanced undergraduates.

PERIOD OF REGISTRATION FOR DEGREE

It is desirable that graduate students complete the work for the Master's degree within a reasonable time. A candidate who does not complete this work within a period of six years from registration will be required to start anew to meet the requirements for the degree.

CANDIDACY FOR MASTER'S DEGREE

Admission to the Graduate School does not imply admission to candidacy for a degree. After a student has earned 15 quarter hours and before he has earned 21 quarter hours, he must appear before the committee to determine his fitness for an advanced degree.

ADVISERS

The Chairman of the Graduate School appoints for each applicant for a degree an adviser.

The adviser shall be the professor in charge of the major subject who will direct the research for the thesis.

The student should secure the written approval of the adviser on all matters before asking for the approval of the Chairman of the Graduate Committee.

COLLEGE SCHOLARSHIPS

A limited number of scholarships have been provided by the college. The scholarships are open to students having a baccalaureate degree from an approved institution and have a value of \$270, with exemptions from all fees except the matriculation and student activity fee.

FEES

The graduate student will pay five dollars when he matriculates and three dollars for each credit hour for all courses. A full time graduate student may elect to pay the same fee as an undergraduate.

CERTIFICATION REGULATIONS

The North Carolina State Department of Public Instruction has issued the following requirements to be followed by those desiring a Master's degree and also a state graduate teaching certificate: These include two major groups (1) Teachers and (2) Principals and Supervisors.

REQUIREMENTS FOR GRADUATE SECONDARY AND GRADUATE ELEMENTARY CERTIFICATES, EFFECTIVE AS OF JULY 1, 1941

I. Graduate Secondary Certificates:

- A. Hold or be qualified to hold the Class A high school teacher's certificate.
- B. Have three or more years' teaching experience.
- C. Have a Master's degree from an institution of higher learning with recognized graduate standards approved by the State Department of Public Instruction. This would include:
 - 1. Subject matter in the certificate fields ----- 12 S.H.
 - 2. Education (philosophy, principles, curriculum,
psychology, etc.) ----- 6 S.H.
 - 3. Electives ----- 12 S.H.

II. Graduate Elementary Certificate:

- A. Hold or be qualified to hold the Class A primary or grammar grade certificate.
- B. Have three or more years' teaching experience.
- C. Have a Master's degree from an institution of higher learning with recognized graduate standards approved by the State Department of Public Instruction. This credit would include:
 - 1. Academic work ----- 6-12 S.H.
This should include subject matter in those fields
in which there are manifest weaknesses in the equip-
ment of the individual, as well as subject matter that
would strengthen points already strong.
 - 2. Education (philosophy, principles, curriculum
psychology, etc.) ----- 6 S.H.
 - 3. Electives ----- 12-18 S.H.

REQUIREMENTS FOR PRINCIPAL'S CERTIFICATE, EFFECTIVE AS OF JULY 1, 1943

- A. Hold or be qualified to hold the Class A teacher's certificate (secondary or elementary).
- B. Have three years' teaching experience within the past five years.
- C. Hold a Master's degree from an institution of higher learning with recognized graduate standards approved by the State Department of Public Instruction.
- D. Have credit for a minimum of 12 semester hours (18 recommended) of graduate work in Education selected from the following areas:
 - 1. Fundamental Bases of Education
 - a. The Curriculum, at least 2 semester hours required.
 - b. Human Growth and Development
 - c. Social Foundations of Education

2. Instructional and Supervisory Techniques

- a. Principles of Supervision, at least 2 semester hours required
- b. Teaching Procedures
- c. Guidance and Pupil Personnel and Accounting
- d. Measurements

3. Organization and Administration

- a. High School Administration, at least 2 semester hours required
- b. Elementary School Administration, at least 2 semester hours required
- c. General Administration
- d. School Plant
- e. Staff Personnel
- f. Community Relations.

E. Electives _____ 12-18 semester hours

This elective credit may be of the candidate's choice, subject to such requirements as the institution may have for the Master's degree, but it should be designed primarily to add to one's equipment as a teacher.

PROGRAM IN EDUCATION FOR TEACHERS AND PRINCIPALS

The program is designed especially for persons who are interested in some phase of educational, industrial, social or government work and is organized so that one may complete the North Carolina requirements for the graduate certificate and the Master of Science degree at the same time.

The program is flexible and will permit sufficient concentration in a given subject matter field to qualify for certification thus making it possible to secure teaching certificates in several fields.

The following is the general program to be pursued by persons desiring to qualify for a teaching certificate:

A. For teaching certificates

1. Required courses

Ed. 601. American Public Education _____	3	Q.H.
Ed. 622. Measurements and Evaluation _____	3	"
Ed. 612. Techniques of Research _____	3	"
Guid. 601. Field of Guidance _____	3	"
E. 621. Educational Psychology _____	3	"
Ed. 605. Teaching _____	3	"
Ed. 606. Curriculum _____	3	"

2. Subject-Matter courses according to certificate _____ 9-18 "

3. Electives and Thesis _____ 9-18 "

B. For Principals and Supervisors

1. Required courses

Ed. 601. American Public Education -----	3	Q.H.
Ed. 622. Measurements and Evaluation -----	3	"
Ed. 612. Techniques of Research -----	3	"
Ed. 605. Teaching -----	3	"
Ed. 606. Curriculum -----	3	"
Ed. 609. School Planning -----	3	"
Ed. 626. H.S. Administration -----	3	"
Ed. 627. H.S. Supervision -----	3	"
Ed. 624. Elem. Sch. Administration -----	3	"
Ed. 625. Elem. Sch. Supervision -----	3	"
Guid. 601. Field of Guidance -----	3	"
Social Science -----	3	"

2. Electives and Thesis ----- 9 "

Programs in certain other graduate departments will be outlined, on request, by the Major Professor of the department concerned and the Chairman of the Graduate Committee.

DESCRIPTION OF COURSES

AGRICULTURAL ECONOMICS

- 501. Advanced Agricultural Statistics.** Advanced statistical methods as applied to agriculture; special consideration will be given to index numbers, tabulation of numerical data, graphic presentation, analysis and interpretation of statistical data.

Prerequisite: Ag. Econ. 132.

Credit 3 (2-2).

- 502. Agricultural Policy.** The formulation and impact of public policy on agriculture; the importance of agriculture in the national and international economy, past, present and proposed agricultural programs and policies.

Credit 3 (3-0).

- 503. Land Appraisal.** Factors determining land value; methods of evaluation; appraisal of farm land for specific uses; for purposes of taxation, for making loans and for sale.

Credit 3 (3-0).

- 504. Agricultural Prices.** Cyclical movement and seasonal variation of prices; the general price level; construction of index numbers; and control of agricultural prices.

Credit 3 (3-0).

- 505. Business Law.** Fundamental principles of law as applied to business transactions of farmers; property rights; sales; negotiable documents of titles; credit instruments.

Credit 3 (3-0).

- 508. Special Problems.** This is designed for students who desire to work out special problems in the field of agricultural economics. Consent of the Head of the Department must be obtained.

Credit (3-6).

- 510. Seminar.** Discussions and reports. Prerequisite: Consent of the instructor.

Credit 1 hour.

Graduates and Advanced Undergraduates

- 501. Farm Records.** Methods and practices of taking and keeping farm inventories, feed records, crop records, simple financial statements, and analysis and the interpretation of results obtained from farm business transactions.

Prerequisite: 142.

Credit, 3 (1-4).

- 502. Rural Law.** Classification of farm property; study of farm boundaries, fences, stock law, rents, contracts, deeds, abstracts, mortgages, taxes, and laws governing shipping of farm products.

Prerequisite: 142.

Credit, 3 (3-0).

- 503. Advanced Farm Management.** A further study of the principles of farm organization and management as applied to typical regions of North Carolina. Occasional field trips will be made to study successful farms.

Prerequisite: 142.

- 504. Farm Cost Accounts.** Construction and interpretation of cost accounts; relation of cost to price. Cost of production studies and the interpretation of results; closing and analyzing of a set of farm cost accounts.

- 505. Principles of Cooperation.** A study of the principles underlying cooperative endeavor. Experiences of cooperative associations of farmers are used as illustrative material.

Credit, 3 (3-0).

- 506. Marketing Methods and Problems.** A careful study of the problems and methods involved in marketing of farm products. Suggestions for improvements will be stressed.

Credit, 3 (3-0).

- 507. Agricultural Finance.** Principles involved in financing the production and marketing of agricultural products. Consideration of farm mortgage credit, personal and intermediate credit, and agricultural taxation.

- 522. Economics of Agricultural Production.** Economic theories applicable to agriculture. The nature and characteristics of the factors of production, the law of variable proportion, the law of diminishing return, and the theory of least cost.

- 523. Farm Credit.** Analysis of the various types of credit farmers may secure and procedures which teachers of Vocational Agriculture and County Agents might employ in acquainting the farmers with the various farm credits.

- 508. Agricultural Statistics.** Statistics, methods and their application. Frequency distributions, averages, measurements of variations, their reliability, trend and linear correlation. Classification, tabulation, and graphic representation.

Credit, 3 (3-0).

Graduates

- 601. Economics of Agricultural Production.** Economic theories applicable to agriculture. The nature and characteristics of the factors of production, the law of variable proportion, the law of diminishing return, and the theory of least cost.

Credit, 3 (3-0).

- 602. Farm Organization and Management.** The extension of the economic principles discussed in Agricultural Economics 503 and the application of these principles to the problems of farm organization and management.

Credit, 3 (3-0).

- 603. Land Economics.** The economic problems of land clasification, ownership and acquisition of land, tenancy and land ownership, the functions of the landlord and the tenant, land valuation and speculation.

Credit, 3 (3-0).

- 604. Current Problems in Agricultural Economics.** The content of this course will be changed from year to year. Important problems vital to agriculture, will be studied as they develop; topics prepared and presented by students and staff members.

Credit, 3 (3-0).

- 605. Research in Agricultural Economics.** A consideration of the research method and procedure now being employed by research workers in the field of Agricultural Economics, with special application to farm management and marketing.

Credit, 3 (3-0).

AGRICULTURAL ENGINEERING

- 500. Terracing and Drainage.** Improvement of soil by use of engineering structures, practice in construction of terraces and drainage systems.

Credit, 5 (3-4).

FIELD CROPS (AGRONOMY)

- 501. Crop Ecology.** The physical environment and its influence on crops; geographical distribution of crops.

Credit, 3 (3-0).

- 502. Breeding of Crop Plants.** Significance of crop improvement in the maintenance of crop yields; application of genetic principles to techniques used in improvement of crops; the place of seed certification in the maintenance of varietal purity and production of quality seed.

Credit, 3 (2-2).

- 503. Special Problems in Agronomy.** Designed for students who desire to work out special problems in crop production.

Credit, 2 to 6 hours.

SOILS (AGRONOMY)

- 504. Special Problems in Soils.** Research problems in soils for advanced students majoring in agronomy.

Credit, 2 to 6 hours.

AGRONOMY**Graduates and Advanced Undergraduates**

- 501. Soils.** A course in advanced soil problems for graduates and advanced undergraduates.
Prerequisite: Agron. 123.
Credit, 3 (2-2).
- 502. Cotton.** A study of universal standards of American upland cotton, for grade and staple. Factors that determine grade and how to improve them. Practice will consist in classing.
Prerequisite: Agron. 143.
Credit, 3 (2-2).
- 503. Soil Survey.** The making of detailed soil maps and the writing of soil survey reports.
Prerequisite: Agron. 123.
Credit, 3 (1-4).
- 504. Fertilizers.** A study of the sources, manufacture, characteristics, and utilization of fertilizers; calculation of formulas.
Prerequisite: Agron. 123.
Credit, 3 (2-2).
- 522. Seed Certification Problems.** A study of standards of quality in field crops for certification.
Prerequisite: Agron. 131.
- 523. Seed Judging.** Advanced study of quality in crop seeds and the standards for seed certification. Arranging and judging of crop exhibits.
Prerequisite: Agron. 131.
Credit, 3 (2-2).
- 631. The Soils of North Carolina.** The origin, characteristics, plant, adaptation, and fertilizer needs of North Carolina soil types.
Prerequisite: 122.
Credit, 3 (2-2).
- 634. Legumes and Grasses.** Advanced study of legumes and grasses as to their adaptation and uses. Emphasis is placed on their economic use in crop and livestock farming.
Prerequisite: Agron. 131.
Credit, 3 (2-2).
- 634. Crop Breeding.** Principles of plant breeding reviewing and applied to the principal North Carolina field crops; hybridization, and breeding for special qualities.
Prerequisite: Zoology 134.
Credit, 3 (2-2).

FRUITS AND VEGETABLE PRODUCTION (HORTICULTURE)

- 501. Special Problems in Fruits or Vegetables.** Work along special lines given largely by the project method for advanced undergraduate students who have the necessary preparation.

Credit, 2 to 5 hours.

ORNAMENTAL HORTICULTURE

- 502. Special Problems.** Work along special lines given largely by the project method for advanced students who have the necessary preparation.

Credit, 2 to 5 hours.

Graduates

- 601. Research in Crops.** Special Problems chosen or assigned.

Credit to be arranged.

- 602. Research in Soils.** Special Problems chosen or assigned.

Credit to be arranged.

ANIMAL HUSBANDRY**Graduates and Advanced Undergraduates**

- 501. Animal Nutrition.** Carbohydrates, fats, protein and mineral metabolism. Net energy values and application to new theories feeding.

Credit, 5 (5-0).

- 501. Swine Production.** A study of practical hog raising stressing such points as breeds, breeding, selecting stock; feeding, diseases, insect pests and sanitation.

Prerequisites: 122, 131.

Fall. Credit, 3 (2-2).

- 502. Farm Meats.** The course includes killing, dressing, cutting, curing and smoking, sausage making and meat inspection. Trips will be made to the City Abattoir to supplement work done at the college.

Prerequisite: 122.

Fall: Credit, 3 (1-4).

- 503. Practical Dairying (Formerly Dairy 145).** A study of dairy barn construction, barn sanitation and disinfectant, dairy bacteriology and the methods of sterilization, standardization and pasteurization of milk and cream; making artificial buttermilk, cottage cheese and cream cheese; preparing and marketing of milk, cream and other milk products.

Prerequisite: 122.

Spring. Credit, 4 (2-4).

- 504. Ice Cream Making (Formerly Dairy 132).** A study of the manufacture of ice cream, sherbets and ices on a private or commercial scale, marketing and scoring and judging.

Prerequisite: 122.

Spring. Credit, 5 (3-4).

- 511. Dairy Herd Management.** A course in feeding and management of the dairy herd. It includes a study of pedigrees, handling test cows, advanced registration, fitting cows for shows and for sale.
- 512. Marketing Livestock.** Developments and markets including the packing industry, methods of marketing and factors affecting receipts and prices of market animals.
- 513. Advanced Livestock Judging.** Advanced judging of horses, cattle, sheep and swine; history, purposes and organization of breeding associations; use of herd books; tabulations and a study of pedigrees; the work and methods of constructive breeders.
- 514. Anatomy and Physiology of Domestic Animals.** A study of viscera, general physiology and pathology.
- 521. Problems in Dairy Technology.** Technical problems relating the manufacture of dairy products; methods of experimentation.
- 522. Advanced Animal Nutrition.** The principles and facts of the science of animal nutrition and economic feeding practices with special attention to recent discoveries pertaining to quality in the protein, mineral requirements and the vitamins.
- 526. City Milk Supply.** The phases of the City Milk Supply from the standpoint of the Milk Inspector and the Board of Health; the methods and processes used in a central pasteurizing milk distribution plant and the dairymen supplying milk to same; the raw retail milk distributor and his problems.
Prerequisite: 505.
Winter. Credit, 3 (2-2).

Graduates

- 601. Research Studies in Animal Husbandry.** An intensive study of experimental data.
Time and credit to be arranged.
- 602. Poultry Research.** Problems chosen or assigned.
Time and credit to be arranged.
- 603. Seminar.** Problems vital to the poultry industry will be discussed by the students and members of the staff.
Time and credit to be arranged.

RURAL SOCIOLOGY

Graduates and Advanced Undergraduates

- 501. Rural Social Problems.** Population, education, religion, health, land tenure, parity income, farm labor and mechanization, and housing.
Credit, 3 (3-0).
- 502. Rural Leadership.** Opportunities and needs for rural leadership; educational and psychological requirements for various types of rural leaders.
Credit, 3 (3-0).

- 503. Community Organization.** Planning and organizing educational, health, recreational and religious activities for rural people.
Credit, 3 (3-0).
- 504. Special Problems in Rural Sociology.** Students will work on problems in rural sociology under the guidance of a member of the faculty.
Credit, 2 to 4 hours.
- 505. Seminar.** The structural characteristics and classification of different types of social groups as related to their functions are studied.
Credit, 3 (3-0).
- 521. Rural Social Life.** Development and functioning of basic rural social institutions, cultural backgrounds, standards, and methods as related to cooperative effort and social change.
- 524. Rural Movements.** Farm Bureau, Farmer-Labor Union, Grange, Populist, Non-Partisanism-Cooperatives.

SOCIOLOGY

- 501. Leadership.** Survey and critical analysis of qualities and factors essential for good leaders in American life.
Prerequisite: Sociology 232.
Credit, 3 (3-0).
- 502. Current Economic and Social Problems.** A practical course in applied economics and sociology dealing with analysis of present trends in government economics, industry, agriculture and the social implications of these trends. Current problems of every day life are emphasized.
Prerequisite: 15 hours of social science.
Credit, 3 (3-0).
- 503. Research Problems.** Individual problems for research in each student's field of interest—labor, industry, agriculture, unemployment, old age, etc.
Prerequisite: 15 hours of social science.
Credit, 3 (1-4).
- 505. History of Social Theory.** Brief review of the contributions of social theorists beginning with Plato, with consideration given to the social situations and historical events that gave rise and substance to their writings. Open to majors in any of the social sciences, this course coordinates Sociology with Philosophy, History, Economics, Psychology and other related fields.
Spring Quarter. Credit, 3 (3-0).
- 506. Population Problems.** Introduction to population study. The development of official population data; principal sources of information; methods of analysis; survey of contemporary population movements.

ECONOMICS**Graduates and Advanced Undergraduates**

- 501. Recent Labor Legislation.** Problems of labor from standpoint of the state; conciliation and arbitration, legal minimum wage, social insurance, and woman and child labor.

Credit, 3 (3-0).

- 502. Social Security Legislation and Administration.** The need for and development of social security legislation in Europe, and in America, particularly unemployment insurance, old age benefits, and public assistance programs, scope and probable extension, functions of federal, state and local organizations; administrative and social problems encountered.

Credit, 3 (3-0).

POULTRY SCIENCE**Graduates and Advanced Undergraduates**

- 501. Marketing Poultry Products (Formerly Poul. 133).** A study of the theory and practice in classifying, candling, grading and preserving eggs; fattening chickens, handling and dressing. The baby chick business in market.

Prerequisite: 112.

Winter. Credit, 3 (2-2).

- 502. Special Problems in Poultry Husbandry.** Problems in diseases, nutrition and breeding.

2 to 5 hours.

- 503. Selection and Mating of Poultry.** Methods of recognition and selection for purpose of mating from both standard and utility standpoints. Study of progeny performance.

- 504. Poultry Nutrition (Formerly Poul. 131.)** Feeds and feeding; physiology of digestion, absorption and elimination; mineral and vitamin requirements.

Fall. Credit, 3 (2-2).

- 505. Poultry Judging.** Class and practice work in standard and utility judging of fowls. Selection, preparation, breeds for showing.

Winter. Credit, 3 (2-2).

- 521. Poultry Diseases (Formerly Poul. 130).** Sanitation, parasite infestation and control, contagious and non-contagious diseases of the fowl.

Winter. Credit, 3 (1-4).

- 522. Poultry Anatomy.** A study of normal structure of the fowl, including osteology, arthrology, myology, splanchnology, angrology, enurology and oesthesiology.

Prerequisite: 502.

Spring. Credit, 3 (2-2).

- 531. Commercial Poultry Plant Management.** A study of poultry farm organization and management; hatchery management; the economics of the poultry industry and factors influencing profit in poultry enterprises.

Prerequisite: 112.

Spring. Credit, 3 (2-2).

Graduates

- 601. Production Studies and Experiments.** Problems in poultry nutrition, breeding and commercial poultry production and marketing.
Time and credit to be arranged.

BACTERIOLOGY

- 515. Dairy Bacteriology.** The significance and classification of bacteria in ilk and milk products and laws relating thereto; equipment and methods used in laboratories. Interpretation of bacterial counts and milk and its products.

Prerequisite: Bact. 121.

Fall. Credit, 3 (2-2).

Graduates

- 601. Soil Bacteriology.** The bacterial flora of the soil, their activities and influences on fertility and plant nutrition, methods of inoculation and symbiotic relationships; the role of bacteria in the nitrogen and carbon cycles, and influence of soil management practices upon the bacterial flora of the soil.

Credit, 5 (3-4).

- 602. Dairy Bacteriology.** The bacteriology of milk and milk products and problems of bacterial control in milk production.

Credit, 5 (3-4).

ZOOLOGY

Graduates and Advanced Undergraduates

- 501. Special Problems in Zoology.** Credit, 2 to 5.

- 501. Advanced Genetics.** Basic principles of heredity and variation, breeding experiments, animals and plants.

Credit, 3 (1-4).

- 511. Research in Zoology.** Special problems in the field will be followed through research and experimentation.

Prerequisites: 30 hours in Science and 14 hours in Zoology.

Graduates

- 601. Special Problems in Insect Control.** Investigation of practical problems in the control of insects affecting (a) field crops, (b) livestock, (c) garden or (d) orchard.

Credit, 5 (3-4).

BOTANY

- 501. Advanced Plant Pathology.** A study of pathological problems of plants and techniques of investigation.

Prerequisite: 15 hours Botany.

Credit, 3 (2-2) each quarter.

- 504. Special Problems in Botany.** Open to advanced students in botany for investigation of specific problems.

Credit, 2 to 5.

- 511, 512. Advanced Plant Physiology.** A critical analysis of important phases of plant physiology; review of literature in the field.

Credit, 3 (2-2) each quarter.

- 531. Research in Botany.** Research and experimentation in certain problems in the field.

Credit, 3 (2-2).

BIOCHEMISTRY

- 505. Special Problems in Biochemistry.** Problems in either plant or animal nutrition. Development of procedures and methods for isolation and synthesis of naturally occurring plant or animal constituents.

Credit, 2 to 6 hours.

- 506. Plant Biochemistry.** Chemical composition of plants; methods of detailed analysis of active constituents of fresh and dried plant materials.

Prerequisite: Biochem. 148.

Credit, 5 (2-6).

CHEMISTRY**Graduates**

- 502. Chemical Engineering.** Thermal properties of matter and energy relationships underlying chemical and mechanic processes; the first law of thermodynamics as applied to batch and flow processes, combustion, thermal control, etc.

Prerequisite: Chem. 141.

Credit, 5 (2-6).

- 503. Chemical Literature Study.** Familiarization and uses of chemical periodicals, abstracts, dictionaries and research journals, introducing techniques used in research.

Prerequisite: Chem. 121 and 122.

Fall and Spring. Credit, 2 (1-2).

- 601. Problems in Organic Chemistry.** The important principles of organic chemistry are emphasized from a more mature point of view.

Credit, 5 (3-4).

AGRICULTURAL EDUCATION

Suggested Graduate Major in Agricultural Education

Agricultural Ed. 501. Evening School and Part Time Work.....	Credits 3 (3-0)
Agricultural Ed. 502. Problem Teaching in Vocational Ag.....	Credits 3 (3-0)
Agricultural Ed. 504. The Principles of Agricultural Ed.....	Credits 3 (3-0)
Agricultural Ed. 505. Guidance and Group Instruction.....	Credits 3 (3-0)
Agricultural Ed. 601. Administration and Supervision.....	Credits 3 (3-0)
Agricultural Ed. 602. Curriculum Construction in Vocational Agriculture	Credits 3 (3-0)
Agricultural Ed. 604. Community Problems in Agriculture.....	Credits 3 (3-0)
Agricultural Ed. 605. Problems in Educational Psychology.....	Credits 3 (3-0)
Industrial Ed. 521. Philosophy of Vocational Education.....	Credits 3 (3-0)
Agricultural Ed. 606. Research in Education.....	Credits 3 (3-0)
(Thesis 5-10 hours)	

Major 30 hours, minor 15 hours. A split minor may be taken a major and minor 45 hours.

501. Evening School and Part-Time Work. Principles and problems of setting up and directing adult groups and out-of-school groups with emphasis on collecting and arranging materials for evening class instruction.

Credit, 3 (3-0).

502. Problem Teaching in Vocational Agriculture. Setting up problems for teaching unit courses in vocational agriculture.

Credit, 3 (3-0).

503. The New Farmers of America. The practices and policies of setting up local, district and state organizations. Emphasis will be given to training of officers and members.

Credit, 3 (3-0).

504. The Principles of Agricultural Education. Consideration of the principles and practices in agricultural education in keeping with the research and present trends.

Credit, 3 (3-0).

505. Guidance and Group Instructions. Group instructions applied to agricultural occupations, guidance and counseling with special reference to pupils in vocational agriculture.

Credit, 3 (3-0).

601. Administration and Supervision. Administrative and supervisory problems of vocational agriculture, the practices and policies of local, state and federal problems dealing with administration and supervision of vocational agriculture.

Credit, 3 (3-0).

602. Curriculum Construction in Vocational Agriculture. Building unit courses in vocational agriculture and selecting subject matter to use with the course along with the common problems of evaluating the content of the course.

Credit, 3 (3-0).

- 603. History of Vocational Agriculture.** A brief review of Vocational Education in Europe and America. Special space to be given to the Vocational Agriculture as it is developed in the United States.
Credit, 3 (3-0).
- 604. Community Problems in Agriculture.** Finding the common problems of the community that relate to agriculture and developing solutions.
Credit, 3 (3-0).
- 606. Research in Vocational Education.** Research problems developed under the supervision of some member of the staff.
Credit, 3 (3-0).

HOME ECONOMICS

Clothing, Textiles and Related Art

- 502. Advanced Textiles.** Laboratory testing of various fabrics.
Credit, 3 (1-4).

Foods and Nutrition

- 501. Advanced Nutrition.** Experimental problems dealing with the science of specific food stuffs.
Credit, 5 (3-4).

INDUSTRIAL EDUCATION

Graduate work in industrial education aims to aid the promotion of industry by providing advanced technical training for those who plan to follow industrial careers and for teachers of industrial arts or for teachers of vocational-industrial education. The department offers instruction for the following classes of students: (1) those of experience who desire advanced training as teachers or supervisors of unit shops or of general industrial arts shops in junior and in senior high schools, and in schools in the smaller communities; (2) experienced tradesmen with the necessary teaching requirements who desire additional training in the development or conduct of programs of industrial education, especially those established under the Smith-Hughes Act; (3) teachers of related or cognate subjects who feel the need of further training in these related fields.

For Graduates and Advanced Undergraduates

Graduate work in industrial education aims to aid the promotion of industry by providing advanced technical training for those who plan to follow industrial careers and for teachers of industrial arts education or vocational industrial education. The department offers instruction for the following types of students: (1) those in the field who desire advanced training as teachers or supervisors of unit and general industrial arts shops in junior and senior high schools; and in schools of the smaller communities; (2) experienced tradesmen with the necessary teaching requirements who desire additional training in the development and conduct of programs of industrial education, especially those established under the Smith-Hughes Act; (3) teachers of related or cognate subjects; (4) others who desire further training in these fields.

- 504. Foundations of Industrial Education (Advanced Industrial History).** Deals with the industrial evolution of the United States. The roots of the present age of machinery are sought in English backgrounds—in the manor system, the markets and fairs, the rise of towns, the guilds, the development of capital, the introduction of power-driven machinery, and the establishment of the factory system. Especial emphasis upon developments in America and their effect upon industrial education in this country.

Credit, 3 (3-0).

- 602. Current Problems in Industrial Education.** Problems involving the analysis of objectives, curriculum content, types of equipment, and outcomes studied. Suggestions are considered for improving current practices. Projects in industrial relations, public relations, records and forms, literature in the area of industrial education, improvement of instruction, teaching aids and devices.

Credit, 3 (3-0).

- 603. Industrial Psychology.** Application of principles of psychology to problems as industrial organization, management, production and efficiency.

Credit, 3 (3-0).

- 604. Supervision and Administration of Industrial Education.** Relation of industrial education to the general curriculum and the administrative responsibilities entailed. Courses of study, relative costs; co-ordination problems; class and shop organization, and development of an effective program of supervision. Selection of teachers, and their improvement in-service. Of interest to school administrators, teachers of industrial arts, and vocational industrial subjects.

Credit, 3 (3-0).

Cognate Subject. A student majoring in industrial education should select a cognate subject-matter field with the approval of his adviser. The choice of a cognate subject must be in a department where the work can be logically related to industrial education or to the basic interests of the student. The following are suggested as possible electives for the cognate field of concentration: engineering subjects, economic or industrial history, labor problems, labor legislation, economic problems, vocational guidance, and social problems.

OFFERINGS IN VOCATIONAL-INDUSTRIAL EDUCATION

- 520. Foundations of Industrial Education (Advanced Industrial History).** Deals with the industrial evolution of the United States. The roots of the present age of machinery are sought in English backgrounds—in the manor system, the markets and fairs, the rise of towns, the guilds, the development of capital, the introduction of power driven machinery, and the establishment of the factory system. Especial emphasis upon developments in America and their effect upon industrial education in this country.

Credit, 3 (3-0).

- 603. Industrial Psychology.** Application of principles of psychology to problems as industrial organization, management, production and efficiency.

Credit, 3 (3-0).

- 604. Supervision and Administration of Industrial Education.** Relation of industrial education to the general curriculum and the administrative responsibilities entailed. Courses of study; relative costs; co-ordination problems; class and shop organization and the development of an effective program of supervision. Selection of teachers, and their improvement in-service. Of interest to school administrators, teachers of industrial arts, and vocational industrial subjects.

Credit, 3 (3-0).

- 605. Visual Aids in Education.** The principles and practices of visual instruction. The course aims to give the student experiences in the operation and maintenance of projection equipment and in the use of such equipment in audio-visual instruction.

Credit, 3 (3-0).

- 606. Seminar in Vocational Education.** Investigations and discussions for advanced and mature persons who have had experience as teachers, supervisors, or administrators in one or more phases of vocational education.

Credit, 3 (3-0).

- 607. Curriculum Laboratory in Industrial Education.** Reviews the basic principles of the preparation of instructional materials for actual shop and classroom use. Each student, or group of students, selects some significant area of instruction and develops for this area instructional material for actual use in a shop or related subject. Courses of study that function in actual teaching situations are prepared and it is anticipated that each student will be able to take away with him a course of study that actually meets the needs of his community. Throughout, the laboratory method is used, supplemented by demonstrations, field trips to industry. Opportunity is afforded to analyze existing courses of study.

Credit, 3 (3-0).

SUBJECT-MATTER COURSES IN INDUSTRIAL EDUCATION

- Hist. 504 Economic and Industrial History of the United States
601 Laboratory Planning for Industrial Arts
602 Laboratory Designing
603 Industrial Psychology
604 Industrial Arts Education in the United States
605 Statistics in Education
606 Industrial-Arts Education in North Carolina
607 Practicum in Problems of Industrial-Arts Education

SUBJECT-MATTER OFFERINGS IN INDUSTRIAL ARTS

- 601. Laboratory Planning for Industrial Arts.** Study of the principles and problems involved in the design, selection, location, installation, and care of equipment suitable for high school industrial arts laboratories or vocational departments. (Formerly education 603).
Credit, 3 (3-0).
- 602. Laboratory Designing.** Principles of designing industrial arts and vocational education laboratories in the light of recent developments in the field.
Credit, 3 (3-0).
- 603. Industrial Psychology.** Application of principles of psychology to problems as industrial organization, management, production, and efficiency.
Credit, 3 (3-0).
- 604. Industrial Arts Education in the United States.** Industrial-arts education has taken its place as one of the major portions of the general education program. Deals with the evolution of this type of education throughout the United States. Seeks to establish the aims and objectives of industrial-arts education and points to their realization in the programs of industrial-arts training as found in institutions throughout the entire country.
Credit, 3 (3-0).
- 605. Statistics in Education.** Study of the common statistical procedure in relation to critical reading of technical studies, research, and writing reports of study.
Credit, 3 (3-0).
- 606. Industrial-Arts Education in North Carolina.** The function and characteristics of industrial-arts education are considered, together with such topics as the nature and needs of the adolescent pupil, ways of meeting these needs through the industrial arts, planning

the work, use of tools and materials, methods of teaching, and consideration of typical practices as found in the various industrial-arts programs of North Carolina State.

Credit, 3 (3-0).

- 607. Practicum in Problems of Industrial-Arts Education.** Designed for teachers and supervisors of industrial-arts education. Proceeds from the sociological, philosophical, psychological, and economic bases of industrial-arts education to the integration of the industrial-arts program with other areas of general education; the improvement of teaching methods and the extension of materials in industrial-arts education; the utilization and co-ordination of community resources for the building of a functional program for the various levels of industrial-arts education. Throughout the course an attempt is made to develop solutions to the problems relating industrial-arts education in the public schools to contemporary industrial methods and processes in the United States and abroad.

Credit, 3 (3-0).

ECONOMICS

- 501. Recent Labor Legislation.** Problems of labor from the standpoint of the state. A survey of existing legislation and procedures for settling disputes. Minimum wage and other legislation are studied in detail.

Credit 3 (3-0).

- 502. Social Security Legislation.** The development of social security programs in America. Particular emphasis is placed upon unemployment insurance, old age benefits and other aspects of the existing program. Attention is given to administrative and social problems encountered.

Credit, 3 (3-0).

- 503. Federal Fiscal Policy.** A thorough survey of the financial aspect of government. The problems incident to taxation and to borrowing to meet governmental expenses are analyzed in detail. Special student readings, reports and class discussion.

Credit, 3 (3-0).

- 504. Employment Problems of the American Negro.** Detailed study of the occupational and industrial status of the Negro and of the problems incident thereto. Special attention is directed to proposed means of facilitating entrance to specific areas of employment.

Credit, 3 (3-0).

- 605. Curriculum Laboratory in Industrial Education.** Reviews the basic principles of the preparation of instructional materials for actual shop and classroom use. Each student, or group of students, selects some significant area of instruction and develops for this area instructional material for actual use in a shop or related subject class. Courses of study that function in actual teaching situations are prepared and it is anticipated that each student will be able to take

away with him a course of study that actually meets the needs of his community. Throughout, the laboratory method is used, supplemented by demonstrations, field trips and visits. Opportunity is afforded to analyze existing courses of study.

Credit, 3 (3-0).

- 606. Research Problems in Industrial Education.** Conferences and studies using the several laboratories of the college as a basis of research. Individual or group studies may be selected to meet the needs of the individuals or groups as suggested by: Pupil study; instructional materials; experiment and development of programs with the publication of either a professional bulletin or technical manual as a goal.

Credit, 3 (3-0).

- 631. General Industrial Programs.** Development of local, state, and national levels of day industrial schools, evening industrial schools, part-time day and evening schools. Their organization types, courses of study, scope of movement, study of special student groups, fees and charges, buildings and equipment.

Credit, 3 (3-0).

- 620. Co-operative Training.** This course is designed to give the prospective teachers of vocational education a knowledge of the basic concepts and processes of co-operative work in general, with special attention to diversified occupations.

Credit, 3 (3-0).

- 632. Seminar in Industrial Education.** Investigations and discussions for advanced and mature persons who have had experience as teachers, supervisors, or principals, and are in direct contact with one or more phases of industrial education.

Credit, 3 (3-0).

- 634. Workshop in Industrial Education.** Individual and group problems will be undertaken, through organized and scientific effort to exhaust all possible resources for their solutions. These procedures may include the experiences of the supervisor and individuals of the group, library research, field trips, movies or any pertinent related source or sources. The ultimate aim is to arrive at a functional conclusion with the best possible solution for publication.

Credit, 3 (3-0).

PROFESSIONAL EDUCATION

- 615. Problems and Trends in Teaching Social Science.** Survey of major problems in the broad field of social studies and consideration of improved ways of presentation and class economy, including lesson plans, assignments, visual aids and other means of facilitating learning.

Credit, 3 (3-0).

- 616. Problems and Trends in Teaching Natural Science.** This course will give attention to major problems of the high school teacher of science. Lesson plans, assignments, tests, etc., will be constructed and administered by each student in the class. Visual aids, demonstrations and laboratory techniques will be carried out.

Credit, 3 (3-0).

- 617. Mental Hygiene for Teachers.** Meaning and function of mental hygiene, its limitation; personality development during childhood and adolescence; special problems; maladjustments and deviations; the clinic and its functions; case study, educational diagnosis and remedial instruction; relation to guidance.

- 621. Educational Psychology.** A study of the application of psychological principles to education. The following subjects are considered: the modifiability and educability of the human organism; the mechanisms of heredity; the learning processes, motivation, fatigue, rates and permanence of learning, memory, intelligence and transfer of training.

Credit, 3 (3-0).

- 622. Measurements and Evaluation.** Measurement techniques for group surveys and individual pupil diagnosis are studied, and students secure practice in scoring and interpreting a variety of tests. Topics include: characteristics of objective tests and standardized tests; the study and diagnosis of pupil aptitudes and abilities; test selection; construction of objective tests; interpreting data; evaluation of school programs.

Credit, 3 (3-0).

- 623. Educational Sociology.** This course will deal with problems most vital in the development of education in our democracy. All the major phases of education will be given consideration. Course recommended for those preparing to take the comprehensive examination for the Master's degree. Among the topics to be included are: social and philosophical bases of education; aims, functions, and objectives of education in a democracy; support and control of American elementary and secondary education; the teaching staff; the curriculum and extracurriculum; vocational education; adult education; guidance; education through motion pictures, radio, and press; education and crime; education and the community.

Credit, 3 (3-0).

- 624. Elementary School Administration.** Problems of the elementary school principal, including admission and entrance policies, classification and grouping, promotion, marks, reports, tests, discipline, selection of textbooks and equipment, assembly, supervision and care of the school plant; community relations, office management, the administration of special classes, attendance service, and types of school organization.

- 625. Elementary School Supervision.** Such topics as the following will be treated: Objectives and principles of supervision, supervision and teacher-training, professional preparation of elementary school supervisors, evaluation of instruction, supervision of activity programs, supervision of character education, etc.

Credit, 3 (3-0).

- 626. High School Administration.** A basic professional course for the principalship and for other administrative positions in junior high schools, senior high schools, and junior colleges. The materials are adapted to the needs of those holding positions of these types and to experienced teachers who desire to prepare for such positions. The following topics will be studied: scope and function of secondary school administration, the curriculum, the extra-curriculum, the guidance program, schedule, teaching load, equipment and supplies, office standards, procedures and forms; finance, and—the school and the community.

- 627. High School Supervision.** A course for principals, heads of departments, and supervisors. A study of problems, techniques, and materials in the improvement of instruction in secondary schools. Topics taken up are: purpose and program of supervision, problems of senior high school, problems of junior high school, evaluation of teaching, aiding teachers to plan their work, observation and analysis of recitation, cooperative professional growth.

Credit, 3 (3-0).

RURAL EDUCATION

North Carolina is largely a rural state and the Negro population of the state is predominantly rural and agricultural. Any program of education, to be effective in meeting the needs of this large group of people must be grounded in these basic conditions of their lives.

The courses listed below are designed especially to meet the needs of teachers or others who are now employed or who looks forward to employment among large agricultural and laboring groups, living under conditions as mentioned above.

Graduates

- 601. Theory of American Public Education.** Objectives, organization, administration, support and control of public education in the States.

Credit, 3 (3-0).

- 602. Negro Education in a Bi-Racial System.** A general survey of trends in public education in the South, as it relates to Negroes, including such problems as philosophy, aims, curriculum on elementary and secondary level, consolidation, control, support, teachers and special workers.

Credit, 3 (3-0).

- 603. The County Training School.** An intensive study of development, organization and current problems confronting the county training or other consolidated schools. Topics: Pupils, curriculum, transportation, health, attendance, and parent co-operation.

Credit, 3 (3-0).

- 605. The Profession of Teaching.** A study of the status of teaching as a profession in the United States; teacher obligations, responsibilities and opportunities for leadership in the classroom and community with special emphasis on the Negro teacher in the rural community.
- 606. The Curriculum.** An examination of the basic principles and problems of the curriculum and teaching including scope of educational experiences and opportunities essential for a good rural program on different levels.
Credit, 3 (3-0).
- 609. School Planning.** An examination of the principles governing the selection and landscaping of school grounds, location and design of building, and care of the plant from standpoint of use, sanitation, health, arrangement and attractiveness.
- 612. Techniques and Methods of Research.** Careful analysis and study of research problems; techniques and methods of approach.
Credit, 3 (3-0).
- 610. Special Workers and Services in Rural Education.** Study of recent developments in Negro public education including place and importance of special services and agencies supplementing the traditional program. Topics included are: Trade teachers, vocational agriculture, 4-H club activities, supervisors, county and home agents, health and home services, P. T. A., and attendance officers.
Credit, 3 (3-0).
- 527. Diagnostic Techniques in Vocational Guidance.** Detailed study of the various personnel procedures and techniques used in counselling.
- 528. Research in Special Problems.** Problems will be applicable to Vocational Agriculture teachers and County Agents. Amount of credit allowed will be determined by the amount and quality of work done. Schedule to be arranged with professor.
- 530. The Teaching of Agriculture in the High School.** Prerequisites—certificate to teach Vocational Agriculture and experience in teaching said course in an approved department.

ENGLISH

- Eng. 601, a-b. Expository Writing.** The collection, arrangement, presentation, and interpretation of ideas. Readings and papers in the course illustrate the principal types of expository writing.
Credit, 3 (3-0) each.
- Eng. 602, a-b. Special Studies in English Literature.** This course is designed to give the student an appreciation of the effect such significant movements as the renaissance have had upon the literary thought of England. Special emphasis will be placed upon non-dramatic literature.
Credit, 3 (3-0) each.

Eng. 603, a-b. Problems in English. The field and high-school English and its various divisions, aims, methods, and devices, including criteria for the selection and use of texts.

Credit, 3 (3-0) each.

Eng. 604, a-b. Aspects of American Literature. This course will be concerned with critical analysis and evaluation of the place and importance of such significant social and economic factors in American history as the frontier, slavery, abolition, prohibition have had on American thought and writings.

Credit, 3 (3-0) each.

GEOGRAPHY AND GEOLOGY

Graduates

601. The Physical Universe. An examination of principles of geology and astronomy essential to a scientific understanding of the universe. It will include a study of the earth and its age, surface, interior, and other planets.

Credit, 3 (3-0).

602. Geology. A study of principles of earth science including soils, rocks, minerals, geologic structures and processes, sources of geologic information as maps, bulletins and reports.

Credit, 3 (3-0).

603. Geography of North America. An examination of the physical features of the North American Continent, the main physiographic provinces and the influence of physical environment upon man.

Credit, 3 (3-0).

604. Conservation of Natural Resources. An examination of the problems and methods employed in conserving such natural resources as soils, forests, waters and minerals.

Credit, 3 (3-0).

GUIDANCE AND PERSONNEL WORK

Graduate study in guidance and personnel work is designed to meet an urgent need of home-room teachers, class advisers, vocational counselors, deans, principals and other personnel officers directly concerned with problems affecting the adjustment of the pupil to school and vocation. Emphasis is placed on the selection and use of personnel techniques such as testing, rating, and interviewing; also the application of psychological and mental hygiene principles in the solution of type problems.

601. The Field of Guidance. History of the educational and vocational guidance movement with special reference to important factors giving rise to its development and an examination of the fundamental principles involving a program of guidance. Also special function of the teacher in the guidance program.

Credit, 3 (3-0).

- 602. Psychological Aspects of Guidance.** Some basic psychological principles applied to (1) choice or avoidance of occupations, (2) aiding others to choose or avoid occupations, (3) aiding others in adjusting to occupational conditions and demands, and (4) alteration of occupational conditions and demands to meet human needs.

Prerequisite: Guidance 601.

Credit, 3 (3-0).

- 603. School and Community Guidance Programs.** The organization of guidance and personnel programs in elementary and secondary schools. Present practices will be critically surveyed and evaluated and an attempt will be made to formulate acceptable principles for the administration of guidance programs. Attention will be given community programs.

Credit, 3 (3-0).

- 604. Student Personnel: Program and Problems.** Planned for principals, supervisors and others who are directly concerned with the adjustment of the pupil to the school situation. Educational guidance, pupil accounting, the organization of the school personnel program, and the study of personnel procedure are among the problems considered.

Credit, 3 (3-0).

- 605. Case Work in Guidance.** Consideration is given the individual as the unit for study. The aim is to utilize all factors of the individual personality—biological, psychological, environment, and social—in the problem of adjustment. Selected cases will be considered.

Prerequisite: Guidance 604.

Credit, 3 (3-0).

- 606. Principles and Practices of Vocational Guidance.** Vocational problems of the school child; general survey of the vocational guidance movement; the meaning, kinds of, and necessity for guidance; methods of guidance through occupational classes, try out courses, vocational implications of present school subjects, intelligence and achievement tests, social activities and counseling.

Credit, 3 (3-0).

- 607. Diagnostic Techniques in Vocational Guidance.** Detailed study of the various personnel procedures and techniques used in counseling.

Prerequisite: Voc. Guidance 606 or its equivalent.

Credit, 3 (3-0).

- 608. Research and Studies in Occupational and Educational Opportunities.** Occupational trends; opportunities and requirements of occupations; sources of information; organization of occupational information; procedures and techniques in teaching occupations. Special consideration is given to the problem of Occupational Opportunities of Negroes.

Credit, 3 (3-0).

HISTORY

The increased complexity of American life has made it imperative that those who expect to be leaders in their communities as well as those who teach, have a broad comprehensive understanding of civil, economic and industrial organization, and a good working knowledge of their processes.

The courses listed below are designed primarily to train young people for places of responsibility and leadership in fields of industry, business, labor, education and community living.

Graduates and Advanced Undergraduates

- 501. Early Colonial Life.** A survey of the social and economic conditions existing in the Latin American colonies at the time African slavery was first introduced—Indians, European laborers, religious restrictions, conditions in Africa, coming of Englishmen and the English trade.

Credit, 3 (3-0).

- 502. Economic and Industrial History of English Colonies.** A survey of the settlement of the original English colonies and the economic foundations upon which they were based. Chief topics include: land distribution, beginnings in agriculture and industry, hunting and trapping, homes and plantation life.

Credit, 3 (3-0).

- 503. Negro Life and Labor in Eighteenth Century America.** A study of economic and social conditions which made African labor profitable; the white indentured servant, servitude of Indians, religious and other objections to African enslavement, Negro servant plantation workers; educational and religious training of Africans.

Credit, 3 (3-0).

- 504. Economic and Industrial History of the United States, 1787-1865.** A survey of the trade and tax policies that led to the revolutionary war, followed by a study of the economic and industrial development of the American people from that time to the close of the Civil War. Topics for discussion include: land and labor, invention and use of machinery, transportation and western expansion.

Credit, 3 (3-0).

- 505. Economic and Industrial History of the United States, 1865 to Present.** This course begins with a survey of the economic and industrial forces and changes released by the termination of the Civil War, and follows their development. Main topics: introduction of wage system in the south, and labor legislation, beginning of big business, increased use of machinery, opening of the west, economics of the New Deal.

Credit, 3 (3-0).

- 506. The Negro in the Reconstruction of the South.** A survey of the Civil War and conditions produced by it including freedom of slaves, dislocation of industry and property and efforts at re-establishment of the states on new foundations.

Credit, 3 (3-0).

GOVERNMENT

- 601. The Federal Government.** An intensive study of the federal government and its operations. Topics include: federal organization, departments, independent offices, legislation, regulations, control and encouragement of enterprises by educational programs and research.
Credit, 3 (3-0).
- 602. State and Local Government.** A study of state and local governments and their power to regulate, control and promote the general welfare, labor and health laws, educational programs and other services.
Credit, 3 (3-0).
- 603. Government Finances.** A survey of the principles and problems involved in both federal and state receipts and expenditures, taxes and other forms of revenue, persons and businesses subject to taxation and principles governing the purpose for and regulations of public finances.
Credit, 3 (3-0).
- 605. The Constitution and Minorities.** An examination of the provisions in the federal constitution for the protection of minority racial and religious groups including an intensive study of the leading cases decided by the supreme court relating to the Negro.
Credit, 3 (3-0).
- 606. Research in Current Problems.**
Credit, 3 (3-0).

MATHEMATICS**Graduates**

- 501. Theory of Equations.** Complex numbers, solutions of cubics and biquadrates, methods of approximating roots, systems of equations, elements of determinants.
Credit, 5 (5-0).
- 502. Mathematics of Life Insurance.** Probability, mortality tables, life insurance, annuities, endowments, computation of net premiums, evaluation of policies, construction and use of tables.
Credit, 3 (3-0).
- 503. Differential Equations.** Formulation of practical problems as solutions of differential equations, method of solving type forms, systems of equations, singular solutions, methods of approximation, an introduction to partial differential equations.
Credit, 5 (5-0).

- 504. Numerical Computation.** Interpolation, numerical solution of equations, approximations, numerical integration, construction of tables.
Credit, 3 (3-0).
- 506. Advanced Calculus.** Continuity and differentiation properties of functions of one and several variables; the definite integral and improper definite integrals; line integrals, surface integrals, Green's and Stokes' Theorems, complex variables, infinite series.
Prerequisites: Math. 323 and preferably Math. 331.
Credit, 5 (5-0).
- 507. Mathematical Statistics.** Averages, moments, correlation, probability, the normal and poisson's distributions, the Gram-Charlier series, the distribution of statistics, sampling of populations, the Lexis theory, Sheppard's corrections, maximum likelihood, and other selected topics.
Credit, 3 (3-0).

PHYSICS

Graduates

- 501. Meteorology.** A simplified treatment of the fundamental physical laws which hold in the atmosphere and their practical working out in the usually observed meteorological phenomena. A study of weather maps and polar front analysis is included together with a discussion of the principles underlying weather forecasting, causes of weather changes and methods of forecasting.
Credit, 5 hours.
- 602. Heat.** Methods of temperature measurement, specific heats, thermal expansion in solids, in liquids and in gases, conduction, radiation, kinetic theory of gases, change of state, continuity of state, thermodynamics, low temperatures, high temperatures.
Credit, 3 hours.
- 503. Physical and Geometric Optics.** This course shall cover the physical properties of light, velocity and methods of determining, refraction, interference, diffraction, colour, optical instruments, mirrors, lenses, photography, and the superposition of waves.
Credit, 5 hours.
- 504. Electrical Circuit Theory.** The electric circuit is analyzed and the differential equations are solved under the stipulated conditions. Transient and steady state conditions are evolved for circuits under varying conditions of impressed e.m.f.
Prerequisite: Calculus.
Credit, 5 hours.
- 605. Modern Physics.** A course treating the significant advances of Physics since 1900. The course shall cover the Maxwell field equations, atomic structure, elementary quantum theory, X-rays, nuclear and molecular structure, high frequency sound.
Credit, 5 hours.

